# MARINE RECORD

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## RELATING TO LIFE BOATS AND RAFTS.

TREASURY DEPARTMENT.
OFFICE OF THE SUPERVISING INSPECTOR-GENERAL,
WASHINGTON, D. C.

To supervising and local inspectors of steam vessels, boat and raft manufacturers, and others:

The Department having been informed that certain life rafts, not built according to the specifications presented to the Board of Supervising Inspectors at the time of the approval of such rafts, have been placed on steam vessels, all inspectors of steam vessels are hereby directed not to accept or pass hereafter any life raft or lifeboat unless there shall be furnished with each a written guarantee, over the signature of the builder, that such raft or boat is constructed in strict accordance with the specifications presented to the Board of Supervising Inspectors at the time of its approval.

It is further ordered, that on and after August 1, 1896, no life raft or lifeboat shall be accepted or passed by the inspectors of steam vessels unless it shall have permanently attached thereto a metallic plate having thereon, in raised letters and figures the name of the maker of the raft or boat, the place where manufactured, the shop number, and date of manufacture; and, if built of metal, the thickness thereof, Birmingham gauge.

JAS. A. DUMONT,
Supervising Inspector-General.

Approved:
W. E. CURTIS, Acting Secretary.

## COLLISION LITIGATION SETTLED.

The owners of the steamer Arthur Orr were ordered to pay the owners of the sunken steambarge T. H. Smith $10,000 damages, together with interest on that sum from November 11, 1893, by Judge Seaman, in the U. S. Court at Milwaukee the first of the week. The payment is to be in settlement of the libel growing out of the collision whereby the steambarge Smith was sunk. The owners of the Orr will also have to defray half of the expenses of the suit, which are quite heavy. The Orr collided with the Smith early on the morning of November 11, 1893, off Racine. The Smith was light and bound from Chicago to Menominee, and the Orr was running light to Chicago from Milwaukee. A dense fog prevailed at the time and the Smith was not discovered until within 300 feet of the Orr. The engines of the latter were quickly reversed, but the collision was unavoidable and the Orr crashed into the Smith with such force as to explode the boilers. It was claimed that the Smith did not sink immediately, but floated for several hours, when it would have been possible for the Orr to tow her into shallow water. This, it is claimed was not done by the captain of the Orr for fear of grounding on the Racine reef. Judge Seaman referred the matter to Commissioner Kurtz to determine the value of the sunken craft, which he fixed at $20,000. This was excepted to, but Judge Seaman in his decision stated that it was a just valuation and damages would be allowed at half the sum, with interest, and with one-half the costs.

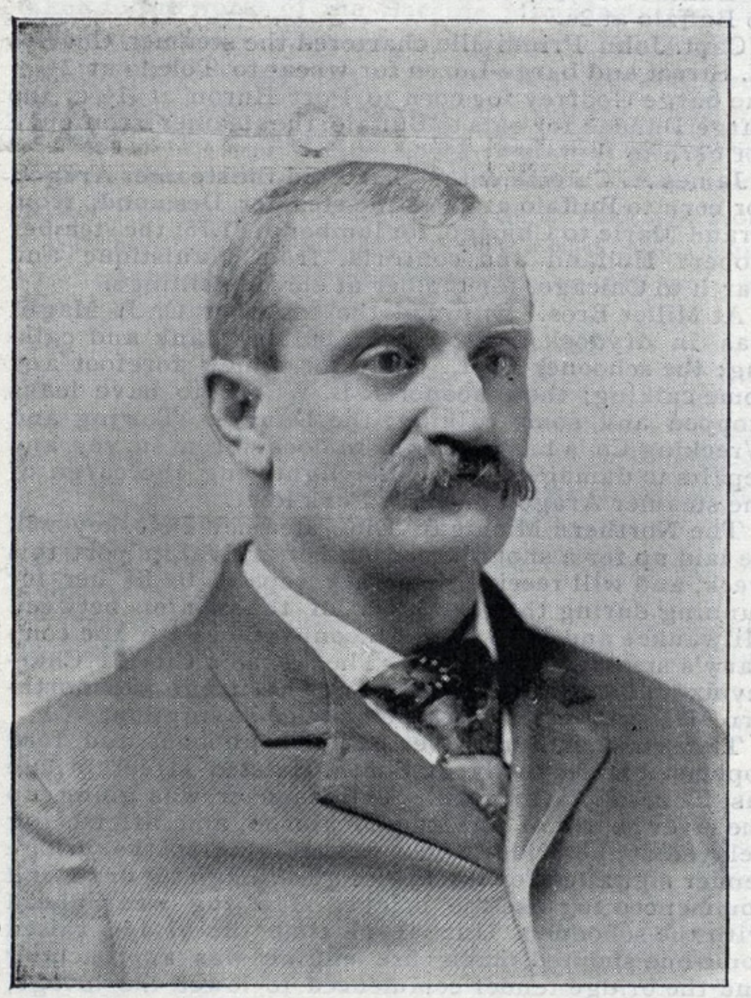
## SUIT FOR GRAIN SHORTAGE.

The Eastern Minnesota Railroad Co. has made answer in the suit brought against it by the Cleveland Iron Mining Co., denying the responsibility for the loss sustained by the plaintiff. The suit is based on a shortage in a cargo of wheat shipped in April, 1890, on the steamer Frontenac, and recalls the large number of complaints that were made at that time about short weights. The wheat was the property of A. J. Sawyer & Co., and had been stored in the Great Northern elevators. The railroad company was ordered to weigh out 81,000 bushels of wheat for the steamer Frontenac, and this the defendant claims was done by state weighmen, on scales that were accurate. When the cargo was weighed in at Buffalo it is claimed that the cargo was 1,500 bushels short. Sawyer & Co. made a demand on the owners of the steamer for the value of the wheat, and received the amount claimed. Now the vessel sues the railroad for the shortage.

## OBITUARY.

CAPT. CRITCHEL.

The late Capt. Critchel, who was buried at Ogdensburg last week, sailed for 26 years in the employ of D. C. Whitney, Detroit, and was master for 20 years, the last four years having been spent in charge of the steamer D C. Whitney. Capt. Critchel died at the home of his sister, Mrs. D. M. Foster, Marine City, Oct. 24, aged 47 years, after a brief illness, though he worked up to the last, nor was it expected that the attack of typhoid pneumonia would carry him off. Such, however, was the case, and although all that loving hands and



(THE LATE) CAPT. CRITCHEL.

hearts could do was done, he did not survive the attack of the malady.

There were few men on the lakes who enjoyed in a greater degree the confidence and respect of their shipmates and associates than that given to the late Capt. Critchel. He was universally liked, and not only did he make friends, but, attracted by his sterling character, he always kept the friendships formed during his sailing career.

Capt. Critchel was a Royal Arch Mason, and that order took charge of his remains. He was also an Odd Fellow, and among the members of both orders the captain was always considered a favorite. Upright, conscientious and a disciplinarian, his life was a well ordered one, and he left this earth the better for his temporary stay here, to cross the river beyond.

There are a large number of friends who offer their condolences to the widow of the late master of the D. C. Whitney, among whom THE RECORD is to be numbered.

## WORLD'S PRODUCTION OF COAL.

A statement from the British Board of Trade, showing the production and consumption of coal and the number of persons employed in coal production in the principal countries of the world in each year from 1883 to 1894, so far as the particulars can be stated, has been issued as a parliamentary paper. In 1894 the United Kingdom produced 188,277,000 tons, Germany 76,741,000, France 26,964,000, Belgium 20,534,000, Austria 9,573,000, Japan (1893) 3,371,000, and the United States 152,448,000 tons. Of the British possessions, Canada produces between three and four million tons, and in addition imports about half her total consumption, principally from the United States. New South Wales produces about 3,500,000 tons, but, unlike Canada, her output has been of late years practically stationary. New Zealand yields over 500,000 tons per annum, but shows little or no increase. Natal's output rose from 26,000 tons in 1889 to 141,000 in 1894. Similarly, in British India the production has steadily risen from 1,316,000 tons in 1883 to 2,821,000 tons in 1894. The countries which import coal in excess of the amount they export are Russia, Sweden, France, Spain, Italy and Austria-Hungary; and of British possessions, Canada, Victoria, Queensland, Tasmania, New Zealand, the Cape and British India, together with all the minor colonies, with the sole exception of Labuan-Borneo.

## LAKE YACHTING INTERESTS.

A meeting was held in Buffalo this week, by a number of lake yachtsmen, among whom were present Commodore Brower, of Buffalo, G. T. Bliss, of Erie, Pa., and E. W. Radder, of Cleveland, representing the Inter-Lake Yacht Racing Association; President Aemiluis Jarvis, of Toronto, J. E. Burroughs, of Rochester, and E. H. Ambrose, of Hamilton, Ont., representing the Lake Yacht Racing Association of Lake Ontario.

The meeting was for the purpose of framing a constitution and by-laws embracing a system of measurements and classification for all the yacht clubs of the lakes. The constitution, as presented to the six delegates, comprised 38 articles.

The first is as follows: The object of the union shall be to continue yachting and boat racing on the Great Lakes; to unify the rules and classifications now existing, so that they will apply to all clubs and in all events on the Great Lakes, but it is not intended that the union shall act in anything but an advisory capacity. The present system of measurement was not materially changed.

## AN IMPORTANT NOTICE.

Capt. DeClute, of the steam fish-boat Louise, states that the fog signal on the "Dummy Light," south of Point Pelee mainland, was badly damaged during last week's gale, and that it will not be in operation until repairs are completed. This information appears to be in advance of any official notice which we have received relative to this important light, and much credit is due to Capt. DeClute for furnishing the news relative to the "Dummy Light."

## A NEW LINE MANAGER.

There has been issued from the office of E. B. Thomas, president of the Erie Railroad Co., New York, an order, under date of November 4, appointing Mr. Charles Paine general manager of the Union Steamboat Line, with office at Buffalo, vice Mr. Washington Bullard, deceased. The office of assistant general manager is abolished.

# NEWS AROUND THE LAKES.

## BUFFALO, N. Y.

*Special Correspondence to The Marine Record.*

The schooner Hawgood went wild for a little while in the creek and took the main topmast overboard of the steamer Tampa. No one was injured and about $50 will foot the bill.

The steamer Elphicke has about 4,000 bushels of wet flaxseed in her cargo. The C. A. Eddy has 900 bushels of wet grain. The schooner Churchill is unloading, and at this writing it is thought she will have wet grain.

Canal boats are at a premium all round this fall. The regular fleet has done all it could for months and last week the rate was raised to 4 cents on wheat to New York. If the canal enlargement is made the most of, there will be a revival of canal business soon that will put some money into the boatmen's pockets.

It looks at this writing as to the story of the loss of the barge Sorona, off Point Abino, was the same sort of a fake that the story of the schooner Sandill was and it looks like the work of the same hand. Point Abino is in sight of Buffalo harbor, and a vessel there in distress ought to be seen from here. The Sorona passed down to Tonawanda the same day she is said to have been lost.

The insurance agents are still in the throes of settling the loss on the cargo of the Northern Wave, which was sunk two years ago. This has proved to be one of the worst cases on record, and last Saturday, a meeting of lake and ocean underwriters was held here to pass on some of the matters that an adjuster could not settle. The meeting appears to have been harmonious and now the adjuster, Wilcox, can go ahead.

There were a good many vessels on the bottom here last Saturday, besides the barges Young, and the Sam. Flint. The water had been driven out of the lake as far as a gale could do it and when it died out there was not much left. It appears necessary to keep on dredging, and vesselmen were bearing down hard on their complaints of the situation above the Blackwell bridge, so that the city fathers would set the dredges at work there in the spring.

The grain business fell off last week, but the amount was enough to keep the port busy, for it came up to 5,300,000 bushels and ought to set a good pace for November. There is more than an average movement in practically everything received or shipped at this port. Coal is doing well with other things. The vessel men grumble and say that if they would only insist on 50 cents they would get it, but they are glad to get loads at 30 cents and the shippers know it.

If nothing happens there will be a new bridge across the creek at Michigan street sometime next year, but there is no prospect of one for a long time. The work has been under way close to a year and the old bridge has been in its present place as a temporary structure since February. It is probably a broad statement on the part of the dockmen, when some of them declared the other day that such a bridge would have been put up in Chicago in six weeks, but it shows how they feel about the business.

When the steamer Mary Boyce struck outside of the breakwater eight times and so solidly that she broke her steam-pipe and scalded some of the men it was thought to be time to call on the government authorities for an explanation. Nearly everybody is of the opinion that scows have been allowed to dump stone and other stuff in the channel, though there is a suspicion that she may have got too low down and struck on the shallows at the head of the river. It is probable that something will be done about it.

There is a big grain fleet in again to begin the week with and there is again talk of a possible blockade, but the amount coming in is no rule to go by. It all depends on the facilities for shipping it out again. There is always a cry raised that the elevators are stuck, but it is quite another difficulty for all that. Buffalo has elevators enough to handle all the grain that comes, and within a day of its arrival, but the canal and rail facilities are an uncertain quantity. When the elevators fill up, it is because the east-bound facilities are short.

There is nothing quite so sweet as charity, when a vessel is in distress or missing. We found this out last week, when the Cleveland steel canal boats turned up all solid after being lost in the gale. Some of the best known vessel men declared that they could never ride out a storm like that and the opinion was general that they were gone. None said "I told you so" when they were found, but some people who had reason for looking on them as rivals and competitors expressed themselves as much pleased when they learned that they were all right.

The steamer Queen of the West is back here with ore for the first time since her rebuild last winter. She brings ore for the new furnace at Punxsutawney, Pa., the completion of which does not appear to be generally known by marine men. Already the B., R. & P. road has taken about 15,000 tons up there from lake vessels and will do a considerable business yet before the lake closes. The ore goes direct to the cars and is handled here only once. The idea is to get enough to the furnace to last through the winter. The business is under the management of Rogers, Brown & Co., who are the owners of the Tonawanda furnace.

It takes Tonawanda to discharge lumber, though. Buffalo received 11,400,000 feet last week, but that is not a circumstance to the fleets that went down the river. On Thursday 19 cargoes went down in a few hours during the latter part of the day and if the George King tow had not got into trouble at the head of the river, some of that would have gone down too. One of the Buffalo papers was very severe on the King for deserting her consort Young in such an uncalled for way, but it is more than doubtful if anything of the sort was done. An eye witness says that the whole case appears to have been a change of plan on the part of the King. She started down the river and then suddenly changed her course and steered for the harbor, behind the breakwater. The Young which was next in tow, went on down stream and when the tow line pulled again, it was at such an angle that it parted. She was then so far down that the harbor tugs were not able to stop her, though they tried, and one of them came near succeeding. They stopped the two other barges in the tow, the J. C. King and the Rawson.

J. CHAMBERLIN.

## CHICAGO, ILL.

*Special Correspondence to The Marine Record.*

H. W. Cook & Co. chartered the steamer W. H. Wolf for corn to Buffalo at 2c.

Lumber freights have advanced, since the presidential election, from eight to eleven shillings per 1,000 feet from Menominee.

At the Chicago Ship Building Co.'s shipyard the steamer Horace A. Tuttle was in dry-dock for some repairs and a new wheel; the steamer Conemaugh is in to have her wheel fastened.

Valentine Fries, of Milan, owner of the steamer William Edwards, and schooners Golden Age, Charles Foster and Marion W. Page, was in Chicago this week.

At the Independent Tug Line's floating dry-dock the steamer Winnie B. was in dock and had her stern bearings repaired; the tug Barry was in and received repairs to her shoe.

Carr & Blair chartered the steamer Manola for corn at 2½c, and oats at 2c to Buffalo; the steamers George T. Hope and D. C. Whitney and barge Wayne, for corn to Buffalo at 2½c; the steamer Pascal P. Pratt for corn to Buffalo at 2c.

Capt. John Prindiville chartered the steamer Charles H. Street and barge Lozen for wheat to Toledo at 2⅛c; the barge Godfrey for corn to Port Huron at 1¾c; the barge Dundee for oats to Buffalo; the steamer Frontenac for corn to Buffalo at 1¾c.

James A. Calbick & Co. chartered the steamer Aragon for corn to Buffalo at 2½c; the steamer Desmond, from Grand Marie to Chicago, for lumber at $1.75; the steamer Robert Holland and consorts, from Manistique and Garth to Chicago, for lumber at eleven shillings.

At Miller Bros.' shipyard the schooner C. J. Magill was in drydock for some new bottom plank and calking; the schooner D. L. Filer for a new forefoot and some calking; the schooner J. B. Wilbor to have leaks stopped and some calking; the Dunham Towing and Wrecking Co.'s barge scow is in dock for a survey and repairs to damage done while lightering the cargo of the steamer Aragon on Hyde Park Reef.

The Northern Michigan Line steamer Petoskey will be laid up for a short period on her arrival in port this week, and will receive necessary repairs to fit her for running during the remainder of the winter between Milwaukee and Muskegon, in connection with the company's steamer Lawrence. The steamer City of Charlevoix will continue to run between Chicago and northern Michigan ports until the close of navigation.

The schooner Ford River had her jibboom and fore topmast carried away at South Halsted street bridge last Thursday afternoon. The schooner was going up the river in tow of the tug Dickinson, and after being delayed at the bridge about fifteen minutes the bridge tender signalled for the tow to go through the draw and commenced to raise the bridge. The tug went ahead with the schooner. Just at the time the bridge raised some one shouted that a fire engine was approaching and the bridge tender commenced to lower the bridge, regardless of the fact that the vessel's foremast was directly under it.

The loss of the schooner Waukesha, Capt. Duncan Corbett and five of her crew, off Muskegon last Saturnay night, has caused deep regret among the marine men at this port. The circumstances of the sad affair as related by the only survivor, Frank Dulach, one of the crew, are startling, if true; but no marine man here believes one iota of the tissue of falsehoods uttered against their old-time, honored friend, who was a man of most abstemious habits and a thorough sailor and navigator, and a man of the strictest integrity and uprightness.

Captain Young, of the steamer Horace A. Tuttle, was not contented with carrying a full cargo of grain from this port, but had a hankering after some Chicago real estate, in the shape of bricks and mortar, a quantity of which he took on the upper and hurricane decks aft. When trying to work his steamer into the Illinois Central B slip to load, Tuesday morning, the wind, which was blowing hard from the south, gave the stern of the steamer a sheer, and brought her starboard quarter rather roughly against the wall of the Lehigh Valley Transportation Co.'s freight house, demolishing the wall from the floor to the roof and about 30 feet in width, a considerable quantity of the material falling on board the steamer.

WILLIAMS.

## CLEVELAND, O.

*Special Correspondence to The Marine Record.*

The Welland canal authorities have issued an order restricting the draft of water in the canal to thirteen feet six inches. It was formerly thirteen feet nine inches.

I was pleased to meet Capt. Tripp the other day, who, I find, is chief officer of the Cadillac. A good command is now in order for the worthy Capt. Ben.

The United States marine hospital office has been removed from the custom house and postoffice building to the United States marine hospital, corner Lake and Erie streets, where seamen desiring medical aid should now apply.

Mr. George W. Peck, of the firm of Page Bros., Boston, manufacturers of ship lamps, oil and electric light fixtures, has been on a western tour in the interests of his firm. Mr. Peck called on his friends and business associates while here.

The C. & B. liner State of Ohio caused some anxiety this week to relatives and friends of her crew and passengers, by being delayed on her up trip. The steamer, however, was safe to an anchor under Long Point, and arrived here all well—barring the delay.

Mr. John F. Pankhurst, general manager of the Globe Iron Works Co., has not yet left for the California coast, the press reports to the contrary, notwithstanding. Mr. Pankhurst will remain here for about a month, and then, having made every proper arrangement, will leave for quite an extended winter's tour on the Pacific Slope.

Mr. John F. Pankhurst, of the Globe Iron Works Co., has appointed Mr. Newman, late with Cramps, of universal reputation, as assistant general manager of the Globe Iron Works Co. This appointment does away with the position of Mr. Curr, late superintendent of the yards, and will undoubtedly eventuate in the more close workings of the company.

The Chase Machine Co. have now placed on the market a steam steerer, which seems to me to be a winner. The new machine is the invention of Mr. James Chase, and the first one is in operation on the large tug C. A. Morgan, of the Cleveland Tug Co.'s fleet. Two others are building to order, and it appears as if the mechanism on the new steering gear is all that any vessel should require.

Work at the yard of the Cleveland Ship Building Co. is progressing on the contract recently given by the Wilson Transit Line, of this city. There is, however, ample room for more keels to be laid, and when Mr. James Wallace sharpens his pencil a little keener another contract is likely to be heard from in the near future.

Dredging operations are in order again at this port, or, at least, so much ought to be done as to keep the port open as long as the weather will permit. The grounding of two cargo steamers this week is not the best way to give the port a reputation as a safe and convenient harbor. The steamers J. S. Fay and the Egyptian both grounded between the piers, drawing less than sixteen feet of water.

Cleveland offered $250,000 worth of river and harbor bonds for sale this week, and received eight bids for them, all of the bids being high. The bonds were sold to the New York branch of the Bank of Montreal for $265,900, or at a premium of $15,900. This is at the rate of $106.36, and on a basis of 3⅝. The bonds will run for thirty years at 4 per cent interest.

Incorporation papers were issued this week by the Secretary of State at Columbus for the Lower Lakes' Steamship Co., of Willoughby township, Lake county. The incorporators are attorney S. H. Holding, M. W. Neal, Frank S. Masten, Nellie Suavely and Bertha Srp. The purpose of the organization, as set forth in the articles of incorporation, is conducting a general freighting and towing business on the lakes, and for the acquiring of terminal property. Mr. Holding is associated in business with H. D. Goulder, Esq.; Messrs. Masten and Neal are young lawyers in the same office. The incorporators are not ready to announce the object of the new company, but the capital stock is placed at $225,000.

I am always pleased to learn of local talent taking precedence, and it is a pleasure to learn that a paper was read on Tuesday by Mr. J. R. Oldham, before the Civil Engineers' Society of the city, on the "Structural Strength of Ships and Improved Arrangements for Repairing without Diminution of Strength." The paper treated of matters under the following heads: "Progression by Steps in Engineering," "Increase in Steel Lake Tonnage," "Bending Moment and Sheering Stress," "Strength of Beams and Girders," "Straining of Ships," "Moment of Inertia," "Improved Hatches," "Useful Weak Ships," "Joggling and Lapping," "Flush Bottoms," "Heavy Ships," "Light Ships," "A Perfect Mechanical Structure."

SWAIN.

## DULUTH ELEVATOR CHARGES.

The cost of storing grain in Duluth elevators is in all cases and for all grains ½ cent per thirty days or part thereof, after the preliminary charges, which are as follows: Per bushel, wheat, barley, oats, rye and corn—elevating, cleaning and 15 days' storage, ½ cent; flax—elevating and 20 days' storage, ¾ cent; flax and barley—cleaning, ½ cent.

## FLOTSAM, JETSAM AND LAGAN.

The Northern Steamship Co. has issued a circular announcing the closing of lake business westbound from Buffalo on November 26.

The fog signal at the Dummy Light in Lake Erie was badly damaged during the blow last week, and will require several days to repair it.

Heavy shipments of apples are being made to western points from Buffalo by lake. On her last trip the steamer Arthur Orr took out 9,000 barrels.

The sale of the Goodrich Line side-wheel steamer Muskegon, recently damaged in the dry-dock at Milwaukee, did not take place according to announcement, a postponement for two weeks, or until November 24, having been decided upon.

Canadians interested in the timber trade are already in the field for next season's business, having chartered several vessels to make trips from Georgian Bay and Lake Superior to Kingston. Also the schooner Albatross for four cargoes from Toledo to Kingston.

Four seamen who stripped the schooner Gilbert Knapp of her outfit, when she stranded on the east shore of Lake Michigan this season, and became a total loss, filed a libel against the outfit on a claim of $102 for services, and the outfit was sold under the hammer.

The steamer Globe, of the Great Lakes Transportation Co., after discharging a cargo of coal at the Manitowoc Coal Co.'s dock, loaded at the Wisconsin Central dock. This is the first time a Buffalo liner has had the opportunity of loading and discharging at Manitowoc.

A dispatch sent out this week from St. Thomas, Ont. giving a graphic description of the loss of the barge Sonora by a sole survivor who claimed to have been the mate of the vessel, was wholly without foundation, and the perpetrator richly deserves punishing for his wicked canard.

Masters in the D. & C. Line report that the wreck of the Grand Traverse, sunk off Colchester, Lake Erie, has not been marked with a light since Friday night, and that it is very dangerous to navigation. They say, also, that the gas buoy on the southeast shoal has not been burning for several nights.

We have just received a copy of "Our New President's March," composed by Juliet S. Norton, and published by the Union Mutual Music Company, 265 Sixth avenue, New York City. It is referred to as being one of the finest marches for piano or organ ever published in America. The title page contains a picture of the next president.

A survey was held at Buffalo on the steam canal-boats Delta, 11, 14 and 15, which broke away from the tug Morgan in last week's gale on Lake Erie. The surveyors found that the boats sustained no damage. The cargo, consisting of grain, flour and merchandise, was also found to be in good shape. All the boats were given certificates of seaworthiness and proceeded on to New York City.

F. W. Wheeler & Co., of Bay City, feel confident that they will secure a second contract from the Flint & Pere Marquette Railroad Co. for a duplicate of the car ferry Pere Marquette, which will be launched this month. Mr. Wheeler says he expects to begin work on two new boats as soon as the ferry is launched. These contracts were obtained several days ago, but have not been given publicity.

The Chicago & West Michigan Railway Co. have decided upon making a bid for Milwaukee business to and from eastern and southern points during the coming winter. The line will be known as the Chicago & West Michigan, and R. B. McElroy will act as commercial agent. All freight is to be handled by the steamers of the Crosby Transportation Co.

Pressure is being brought to bear on the lake line managers to extend the time for taking westbound cargo. Offerings have doubled since election. One line has extended the time to Lake Superior until the 17th. Others will take freight as late as the 26th. This means that Lake Superior lines will send out steamers until navigation is closed by ice.

Referring to the blow of last week an exchange says: "The equinoctial storm which set in Tuesday began raging in all its fury last night and is expected to continue for some time. The barometer yesterday was lower than it has been in the past year." If we are to have equinoctial buzzing around in November, every winter's gale might be so termed; however, in so far as geographical location is concerned it is perhaps as good a term as tornado, typhoon or cyclone when speaking about a northern hurricane.

The wrecked schooner Waukesha was built at Manitowoc by G. S. Rand in 1864, and originally named Nabob. In 1880 she ran ashore at Cana Island and was bought where she lay by Wolfe & Davidson and released by their wrecking tug Leviathan. The firm gave her a rebuild and had her name changed to Waukesha. The net measurement of the lost schooner was 295 tons, rating B1, and Inland Lloyd's valuation $3,500.

The flour cargo record from the head of Lake Superior is now held by the steamer Yale, the big steel freighter under charter by the Anchor Line. She has taken from West Superior, on a draught of 15 feet 9 inches, a cargo of 43,000 barrels, better by 700 than the Centurion's big cargo. The vessel had room for more cargo had the depth of water at Sault Ste. Marie warranted it.

A dangerous obstruction to navigation off Chicago harbor is the crib recently sunk off Chicago avenue. The crib is used in the construction of the new waterworks tunnel, and according to reports of several captains is not lighted at night. The captain of the Ogdensburg Transit Co.'s steamer, H. R. James, reported that he came very near striking the crib while running at full speed.

The Bessemer Line steamer Sir William Siemens has been bested in the grain-carrying record. The Queen City again holds the broom. It was taken from her a little while ago by the Siemens, but the Queen City has gone her 98 tons better. The cargo consisted of 66,283 bushels of oats, 50,360 bushels of corn, and 95,326 bushels of wheat. The Siemens had 174,500 bushels of wheat, which weigned 5,235 tons, and the Queen City's cargo 5,328 tons. Captain Lyons, of the Queen City, thinks this record will hold good for the remainder of the season.

The broken engine of the steamer Lora has been taken to the works of the Sheriffs Manufacturing Co., Milwaukee, for reconstruction. A new bedplate will be required, also repairs to the frame. The working parts of the engine are also to be refitted. During the winter the hull of the Lora will be cut in two and lengthened 36 feet, the intention being to increase the carrying capacity to 900 tons. Next season, it is said, the Lora will be run between Gladstone and Owen Sound, while another steamer is to take her place on the route between Gladstone and Manistee.

## TABLE OF DISTANCES.

Feeling certain that most of our subscribers who are actively engaged in handling and sailing vessel property will be pleased to cut out and paste in their pilot rooms—or hats—the following information, we herewith reproduce the following table of distances from which a light can be seen :

TABLE OF DISTANCES AT WHICH OBJECTS CAN BE SEEN AT SEA, ACCORDING TO THEIR RESPECTIVE ELEVATIONS AND THE ELEVATION OF THE EYE OF THE OBSERVER:

| Heights in Feet. | Distances in Statute or English Miles. | Distances in Geographical or Nautical Miles. | Heights in Feet. | Distances in Statute or English Miles. | Distances in Geographical or Nautical Miles. | Heights in Feet. | Distances in Statute or English Miles. | Distances in Geographical or Nautical Miles. |
|---|---|---|---|---|---|---|---|---|
| 5 | 2.958 | 2.565 | 70 | 11.067 | 9.598 | 250 | 20.916 | 18.14 |
| 10 | 4.184 | 3.628 | 75 | 11.456 | 9.935 | 300 | 22.912 | 19.87 |
| 15 | 5.123 | 4.443 | 80 | 11.832 | 10.26 | 350 | 24.748 | 21.46 |
| 20 | 5.916 | 5.130 | 85 | 12.196 | 10.57 | 400 | 26.457 | 22.94 |
| 25 | 6.614 | 5.736 | 90 | 12.549 | 10.88 | 450 | 28.062 | 24.30 |
| 30 | 7.245 | 6.283 | 95 | 12.893 | 11.18 | 500 | 29.580 | 25.65 |
| 35 | 7.826 | 6.787 | 100 | 13.228 | 11.47 | 550 | 31.024 | 26.90 |
| 40 | 8.366 | 7.255 | 110 | 13.874 | 12.03 | 600 | 32.403 | 28.10 |
| 45 | 8.874 | 7.696 | 120 | 14.490 | 12.56 | 650 | 33.726 | 29.25 |
| 50 | 9.354 | 8.112 | 130 | 15.083 | 13.08 | 700 | 35.000 | 30.28 |
| 55 | 9.811 | 8.509 | 140 | 15.652 | 13.57 | 800 | 37.416 | 32.45 |
| 60 | 10.246 | 8.886 | 150 | 16.201 | 14.22 | 900 | 39.836 | 34.54 |
| 65 | 10.665 | 9.249 | 200 | 18.708 | 16.22 | 1,000 | 41.833 | 36.28 |

EXAMPLE.—A Light 100 feet above the water will be visible to an observer whose eye is elevated 15 feet above the water 15.9 nautical miles; thus, from the table:

15 feet elevation, distance visible, 4.44 nautical miles.
100 " " " " 11.47 " "
Total..... 15.91 " "

THE Bureau of Navigation, Treasury Department, is advised that the governor of San Juan del Norte has notified all importers that the introduction of dynamite, rifles and gunpowder is prohibited, and that all such articles entering the port will be confiscated. Shot guns and cartridges intended for shot guns, are excepted.

## A DEMURRAGE CLAIM.

The captain of the steamer Oscar T. Flint has filed a demurrage claim against a cargo of bituminous coal. The coal was consigned to H. M. Benjamin & Co., but upon the arrival of the Flint at Milwaukee the cargo was ordered to the pumping works. Thus, instead of getting discharged in less than two working days the Flint was detained a full week, hence the demurrage claim. It has been the practice of certain Milwaukee coal firms to order coal consigned to them delivered at small yards with poor discharging facilities, and much loss of time has thus been entailed without the least inclination to compensate for the delay. If deliveries are to be made to parties other than the consignees, agents of the vessels chartered to carry the coal should be notified in advance.

## THE ROBERTS WATER TUBE BOILERS.

The Roberts Safety Water Tube Boiler Co. was incorporated in 1890, and they have built in the interim nearly 900 boilers, ranging from the smallest launch up to installations of nearly 2,000 horse.power.

The Roberts Water Tube Boiler Co. have a capital stock of $250,000, and it is somewhat gratifying to learn that the sixth consecutive annual dividend has just been declared, although all must admit that the last three years were not as profitable as some subsequent years.

Now for a large plant, and perhaps the largest in connection with the construction of tubular boilers, the Roberts is one of the most advanced institutions in the United States, and that the business is prosperous is evidenced by the fact that they have recently paid 10 per cent dividend on the full amount of their stock. Furthermore, the Roberts Co. seem to keep up their plant, inasmuch as $30,000 has been applied to the upkeep of the work during the past year.

As a naval officer, Mr. Roberts thinks that his invention is the father of all the tubular boilers in the United States, and from its record it would appear to be one of, if not the best, because it has attained a universal record.

The original boiler, built by Mr. Roberts in 1879, is still in use, although it was infinitely inferior to anything built at the present day. This company has an enviable record in view of the fact that not one of their boilers has ever killed a man or produced a disastrous explosion.

## PRIZE MONEY.

The Goodrich Line, doing service on Lake Michigan, have entered upon a plan or system of awarding prize money for efficient service in the various departments, as follows:

The captain of the steamer which shall be in the best condition at the close of the season, and whose crew shall have proved the most efficient in all departments, will receive $150. Personal neatness and cleanliness of the entire crew, all damage done to or by the vessel, all loss and damage to cargo, treatment of passengers, and everything pertaining to good discipline, as provided for in the rules and regulations of the company, will be the test in awarding the prize.

A prize of $75 will be awarded to the first officer who keeps his department in the best condition in every respect, including the non-breakage of lines, also the careful handling of cargo, all shortages and damage of any name and nature to count against him.

A prize of $50 will be awarded to the second officer, the same conditions to govern as above provided for the first officer.

A prize of $100 will be awarded to the chief engineer for the best care of all machinery, fitting out expenses, repair bills to be considered, also amount of fuel and oil used. The company will take into consideration the number of miles vessel runs, and the time made per mile, also class of engine and the nature of the boilers, and will make due allowance for same.

A prize of $50 to be given to the second engineer under the same conditions as apply to the chief engineer. It is, of course, expected that the engine rooms and the machinery pertaining thereto shall be kept in neat and clean condition, as well as the engineers themselves.

A prize of $100 will be awarded to the purser who shall keep his books and the work in his department in the best condition, all shortages of and damage to freight to count against him. All errors shall count against him, such as blots, untidy trip reports, erasures on books and any reports from the steamer by passengers of discourteous treatment, whether by the steward or himself.

A prize of $75 will be given to the steward who shall keep his boat and crew in the very best manner possible on the lowest expense, and who shall have fewest complaints of treatment toward passengers reported against him.

The foregoing is in line with the best practice on the ocean, and has also been adopted by the Bessemer (Rockefeller) fleet of Cleveland.

## NOTICE TO MARINERS.

LIGHT-HOUSE ESTABLISHMENT,
OFFICE OF LIGHT-HOUSE INSPECTOR, 11TH DIST.
DETROIT, MICH., November 6, 1896.

On November 10th, the U. S. light-house tender Marigold will leave Detroit for the purpose of removing all the iron buoys in Lake Huron and adjacent waters. Wooden buoys, painted the same color as the iron ones, will be substituted, and allowed to remain until carried away by the ice.

BY ORDER OF THE LIGHT-HOUSE BOARD.

* * *

FRANKFORT PIERHEAD LIGHT STATION.—Notice is hereby given that, on or about November 16, 1896, the light and fog bell towers on the south pier at the harbor of Frankfort, east side of Lake Michigan, will be moved along the extended pier to a point near its outer end, and about 600 feet from their present positions. The light will be shown and the fog bell sounded, each from its respective tower, as heretofore.

* * *

NORTH MANITOU LIGHT STATION.—Notice is hereby given that on or about November 20, 1896, a 10-inch steam whistle will be established at the light station in course of construction on the point making off to the eastward from the southeasterly part of North Manitou Island, northeasterly part of Lake Michigan, to sound, during thick or foggy weather, blasts of 5 seconds' duration separated by silent intervals of 25 seconds, thus :

| Blast | Silent interval | Blast | Silent interval |
|---|---|---|---|
| 5 sec. | 25 sec. | 5 sec. | 25 sec. |

By order of the Light-House Board:

JOHN G. WALKER,
Rear Admiral U. S. Navy, Chairman.

OFFICE OF THE LIGHT-HOUSE BOARD,
WASHINGTON, D. C., Nov. 10, 1896.

## LOW COST OF PRODUCING ORE.

Everybody interested in Lake Superior mines is talking of the year's record at the Oliver, the greatest of the Mesaba steam shovel mines. Some figures printed in Duluth recently, regarding cost of mining at this property, are so low as to cause great doubt regarding their accuracy, and yet they are put in such a way as to indicate a reliable source. These figures show the mine to have run its 810,000 tons of this year's output for about 6¼ cents a ton, exclusive of stripping, which is set down at not over 3 cents on a total ore body to be mined by the shovel. While this is probably too low, it gives an idea of the exceedingly low cost of mining that has been enjoyed by the Oliver this summer. In this connection it is interesting to note that the management of the mines has determined to mine their entire ore body by steam shovels, and that it is not considered necessary to make provision for any change to either milling or other underground process later. Ore will be raised out of the mine, when its level shall have been sunk too far for present methods, by pneumatic elevators or stationary engines for lifting the loaded cars to the surface, or by running switchbacks or circular tracks down the mine. It is stated that some of the largest and best managed Mesaba mines operated underground by the caving process have shown cost sheets this year of not far from 40 cents per ton, including everything. This figure is vouched for as accurate by one of the best known mining engineers in the Mesaba region.—Coal and Coke.

## THE WIND UP OF NAVIGATION.

Mr. W. A. Livingston, of Detroit, is of the opinion that the lake vessel owners can expect but little good effect this fall from the result of the election. It came at a time when the ore season had ended. So low had been the freights on this article that the shippers sent down all they could find room for on the Lake Erie docks and with the result that there is much more on hand than the furnaces can hope to use for many months to come.

Prior to the election speculators loaded up with great quantities of grain. They held it for a rise in prices and to keep up their margin borrowed money on the warehouse receipts. A good deal of this they let go fearing the election of Bryan and a fall in prices. All this was sent forward at the low rates then prevailing. A good deal more was held over, the speculators taking the gambler's chance and this they now have, and they will hold it for some time to come, waiting for that inevitable raise. So that in any event very little grain will go forward from Chicago or Duluth this fall, he thinks.

He looks for a brisk movement in coal owing to the easier money market and the ability of the consumers in the northwest to borrow the money necessary to carry it forward. In lumber very little will be done this fall, though he thinks that if any man can afford to buy it in large quantities at the present cheap prices and hold it a few months, he will reap a harvest.

He argues that the price of everything is bound to go up from now on, and he thinks that had the election taken place in the middle of the season nothing could have prevented a brisk demand for all classes of property carried in lake bottoms and a consequent boom in freights.

THE MARINE RECORD Life Saving Series.

## CAPTAIN HENDERSON.

Among the many skillful and experienced men in life-saving service, may be mentioned Capt. J. E. Henderson, keeper of the station at Harrisville, Mich.

Capt. Henderson was born in London, Ont., May 12, 1858; consequently he is now in his prime, aged 37 years. A brief synopsis of his career shows that during his babyhood the parents moved to Michigan, and

CAPT. J. E. HENDERSON.

from early boyhood the present life-saver could not be kept clear of the water; he gravitated to the liquid as a young duck is known to do, perhaps not from any particular reason, but because nature leads that way. However, the youth started in with fishing and sailing until the year 1881 when we find him enrolled as one of the crew of the Sand Beach life-saving station, under Keeper David Dues; from this time on he gradually worked his way in the service, from pulling oar numbered 8 up to stroke oar, or No. 1, and in the fall of 1885, more accurately November 3, he was finally appointed keeper of the Sturgeon Point life-saving station, a position which he still retains with great credit to the station and earning the thanks of many seamen during the season of navigation for his general courtesy, skillful rescues and a desire to serve all those who are afloat in distress anywhere in his vicinity.

## A NEW CHARTER.

The Graham & Morton Transportation Co. has chartered the Lake Michigan and Lake Superior liner City of Duluth for service between Milwaukee and St. Joseph during the coming winter. The City of Duluth is to go upon the route November 20 and continue until the opening of navigation in 1897. Moreover, this is one of the most progressive lines on Lake Michigan, and, as not in direct competition with the Goodrich Line, must be held up as a factor in forwarding the best interests of the exclusive American Lake.

## RUNNING THE RAPIDS.

There has been a question raised regarding the first steamer running the St. Lawrence River Rapids and the matter has now been cleared up by Mr. S. G. Johnston, of Clayton, N. Y., in a letter to the editor of the Oswego Times, as follows:

"Will you kindly post Mr. James Culligan, of Morristown, as to his poster of the steamer United States running the rapids 64 years ago. The steamer United States which he speaks of was built at Ogdensburg on the point near the present location of the light-house. She came out in 1832, the year of the cholera, and ran, as he says, for a time between Ogdensburg and Lewiston. In 1840 she ran from Oswego to Lewiston and the Telegraph ran between Ogdensburg and Oswego, forming a through line. In 1837-8 she was in the Patriot war and while running up the American channel just above Morristown, she was shot at and one of the cannon balls went through the pilot house and took off the wheelsman's head. She was taken with all on board by the United States government to Sacketts Harbor and kept there until the trouble was settled. In 1845 she was hauled out at Oswego by Thomas Collins, grandfather of Thomas Collins, of Clayton, after which she was condemned and broken up, while one of the engines was put into a boat called the Rochester, built at Oswego, by G. W. Wicks, and afterwards sold to parties in Toronto. The other engine went into the saw mill south of Oswego. At the time the steamer United States was built, there was built at Prescott, Ont., opposite Ogdensburg, a steamer a little larger than the United States called the Great Britain. She was launched prior to the United States and ran from Prescott to Little York (now Toronto), stopping at Brockville, Gananoque, Kingston, Smith's Creek (now Port Hope) and Toronto. These two boats looked alike as to model, the Great Britain being painted black while the United States was painted white. She never went below Ogdensburg. There was no boat running the rapids at that time which came up, except batteaux and durham boats and they were hauled up with oxen and capstans through the worst places in the rapids. The first steamboat to run the rapids was a boat called the Ontario, built at Niagara, and she ran the rapids in 1840.

I was in Ogdensburg when the keel of the United States was laid and was in Sacketts Harbor the first time she called there on her first trip in 1832."

## CARGO STEAMERS FOR LAKE AND OCEAN SERVICE.

WRITTEN BY W. E. REDWAY, NAVAL ARCHITECT, BUFFALO, FOR THE MARINE RECORD.

(PART II.)

Excellent as the results are that have already been achieved by these vessels in fresh water, there can be no doubt that the future has in store as important an advance in design over the whalebacks as they are (assuming it to have been proved) over the "tramp."

Another fleet of cargo steamers has been built at the northeast coast of England, designed upon somewhat similar principles to the whalebacks, but differing materially in details so as to render them suitable for ocean service, thereby constituting another step in advance in the design of freight-boats. These vessels are known as the "Turret" type, of which some nineteen or twenty are already built, and others are projected.

The "Turrets" under water are similar in general design to the orthodox tramp and there is nothing unusual about their bows and sterns. Above water, however, is where the departure from ordinary practice becomes manifest. With a gunwale rounded similarly to that of the whalebacks, the centre portion of the deck is raised four or five feet above the weather deck, for about one-third of the extreme beam, and is connected thereto by the main frames and shell plating being carried up to this working platform in a line of double curvature. This raised portion amidships or working platform extends all fore-and-aft, retaining its form to five feet height to a distance considerably abaft amidships, and then rising another two feet six inches, in order to provide additional capacity aft, for trimming purposes.

Many improvements in detail are being introduced as experience indicates, and in spite of the usual dogged conservatism of "John Bull," the turret type of steamers

is receiving favorable recognition by owners, builders, insurance companies and classification societies.

The construction of wall-sided, bluff-ended freight boats is no doubt partly influenced by considerations of tonnage, partly by facility of construction, as to use a colloquialism "they can be built by the mile and cut off as they are wanted" and also through the method of taking the classification number, by which the scantlings of their component parts are regulated. English Lloyds rule for doing this is as follows: Depth, plus half breadth, plus half girth gives the framing number, and the sum of these quantities, multiplied by the length gives the plating number. These two numbers respectively determine the sizes of the various plates, bars and beams which go to make up a ship, irrespective of her displacement or form; so that within the same extreme dimensions two vessels might be built, one of which could have twice the displacement of the other, yet each requiring the same sizes of materials to construct.

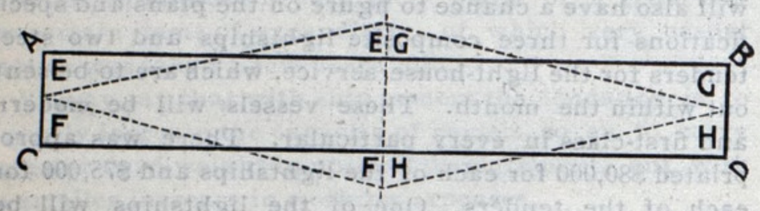
This does not appear to be reasonable because the midship strains to which they would be subject, taking the ships as girders, would be as 3 to 1.

For instance, let A and B represent the two steamers. If half the displacement of A=1, then half the displacement of B must equal .5, and the strains would be proportional to the half displacement multiplied by the distance of centres of buoyancy from amidships thus:

A=1 × .5=.5

B=.5 × .33=.166

that is, the strains on A are 3 times as much as those on B Again, suppose we take a block to represent a cargo steamer as A, B, C, D.




Then in order to preserve the same diaplacement and obtain a fine form, let us cut off the four corners E, F, G, H and place them amidships butt end to butt end, we have now in the dotted lines a vessel of the same displacement but with enlarged midship section and fine ends. In this case,

A=1× .5=.5

B=1 × .33=.33

and the strains are yet greater in A than B, in the proportion of .5 to .33, or as 1½ to 1, while the classification numbers are much larger in B, owing to the enlarged midship section, and consequently call for heavier scantlings.

It is quite evident that the fine ship could be built of considerably lighter scantlings and still have equal strength to the full ship.

Beam, "per se," is no bar to speed, and it must be admitted that the fine ship would be faster with the same power, easier and cheaper to drive, and a better sea boat than the full ship. Her saving in coal would very soon compensate for the slight difference in first cost of shell.

Modern battleships and armored cruisers, as built by our own and foreign governments, have to carry powerful machinery, fuel, armor, armament and equipment as equivalent to the cargo of a freight boat, but their designers being unrestricted by the conditions referred to above, and governed solely by utility, have produced models that are quite different to the orthodox cargo steamer. If the latter were loaded with propelling machinery to the entire exclusion of cargo altogether, it is doubtful if she would attain the speed of the war vessel.

These ideas are not new; they have been advocated before by men like Froude, Reed, Denny, Jenkins, Laird and others. (CONCLUDED.)

## MODERN CARGO CARRIERS.

Even men familiar with the new records made during 1896, in carrying large cargoes, have little idea of the scope covered by a modern grain cargo. In October of 1896, the Queen City, of Duluth, carried in one cargo from Duluth to Buffalo, 176,000 bushels of wheat.

On the average production of 15 bushels per acre it would require 11,200 acres to produce this wheat, or 70 quarter sections, each of which would support for a year in comfort, a family of five, making 350 people at the farm. To transport it to market would require a train two miles long, and when ground into flour it will feed 35,000 people for one year.

To grind it into flour, the ordinary country mill of 150 barrels daily capacity, would have to work night and day for a year, Sundays excepted; and even the big Imperial of Duluth, the largest mill in the world would use up nearly a week in grinding. The value of the cargo in money at Buffalo, the port of destination, was $132,000 and it cost to carry it there $2,640. The entire charges to the farmer at Duluth, were about $880, making total charges for the farmer, Duluth to Buffalo of $3,520 or about 3½ per cent. of its value. Only a few years back these charges averaged from 12 to 15 per cent. of the grain's value.

## TRAFFIC THROUGH ST. MARY'S FALLS CANAL.

REPORT OF FREIGHT AND PASSENGER TRAFFIC TO AND FROM LAKE SUPERIOR FOR THE MONTH OF OCTOBER, 1896, INCLUDING STATISTICS OF THE UNITED STATES AND CANADIAN CANALS AT SAULT STE. MARIE, MICHIGAN AND ONTARIO:

EAST BOUND.

| ITEMS. | U. S. Canal. | Canadian Canal. | Total. |
|---|---|---|---|
| Copper, net tons | 9,447 | 3,320 | 12,767 |
| Grain, bushels | 3,320,923 | 1,441,725 | 4,762,648 |
| Building stone, net tons | 755 | | 755 |
| Flour, barrels | 831,330 | 431,290 | 1,262,620 |
| Iron ore, net tons | 490,180 | 157,319 | 647,499 |
| Iron, pig, net tons | 565 | 2,200 | 2,765 |
| Lumber M. ft. B. M | 93,182 | 1,229 | 94,411 |
| Silver ore, net tons | | | |
| Wheat, bushels | 6,824,075 | 2,730,753 | 9,554,828 |
| Unclassified freight, net tons | 11,641 | 3,927 | 15,568 |
| Passengers, number | 275 | 257 | 532 |

WEST BOUND.

| ITEMS. | U. S. Canal. | Canadian Canal. | Total. |
|---|---|---|---|
| Coal [hard], net tons | 39,197 | 13,150 | 52,347 |
| Coal [soft], net tons | 193,407 | 76,290 | 269,697 |
| Flour, barrels | 150 | | 150 |
| Grain, bushels | | | |
| Manufactured iron, net tons | 9,819 | 2,775 | 12,594 |
| Salt, barrels | 33 718 | 80 | 33,798 |
| Unclassified freight, net tons | 46,923 | 5,123 | 52,046 |
| Passengers, number | 311 | 97 | 408 |

| | |
|---|---|
| East bound freight, net tons | 1,355,109 |
| West bound freight, net tons | 391,418 |
| Total freight, net tons | 1,746,527 |
| Total craft, United States | 1,425 |
| Total craft, Canadian | 478 |
| Total | 1,903 |
| Total registered tonnage, United States | 1,407,748 |
| Total registered tonnage, Canadian | 382,104 |
| Total | 1,789,852 |

## TO CENTRAL AMERICA VIA CHICAGO.

The small sea-going steamer Elsa (33 tons) from Sandusky, Ohio, has just made a successful trip up the lakes to the Marine Iron Works' dock, Chicago, where that company will remove her present machinery and put in one of their steeple compound condensing engines; a Worthington surface condenser with combined air and circulating pump, Lunkenheimer fittings, etc., and otherwise fit out the boat for her trip via the Mississippi River to Central America for service on the Gulf of Mexico. Her owners are practical men and understand the value of having machinery and fittings suited to the waters and the work.

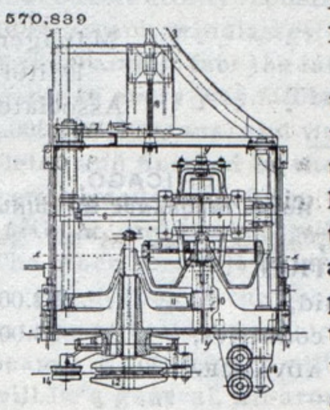
## COPPER SHEATHING OF CRUISERS.

Experience is gradually demonstrating, says the Naval and Military Record, the value of copper sheathing the underwater structure of cruisers. The latest convert to this process is the United States, whose naval authorities have been collecting information as to the advantages of sheathing their cruisers with wood and then covering them with copper, to obviate the necessity of frequent docking for cleaning the hull. With an ordinary steel hull it is found that after five or six months afloat about one-fifth more power is required to maintain ordinary cruising speed than when the bottom was clean. In considering the relative advantages of copper and wood sheathing, the fact must not be overlooked that the former process is the more costly. The Naval Defence steel ships of the Latona type cost £171,000, while the wood-sheathed ships cost £182,000; but this is soon saved on the coal bill and in docking charges. Indeed, the experience of the British Admiralty, it is understood, will result in the Secretary of the United States Navy, in his next report, urging that all future cruisers in the navy should be wood-sheathed and copper-bottomed. Two small gunboats now building for the United States government, are to be sheathed in this way, to demonstrate the efficiency. We may further add that Chief Constructor Hichborn, U. S. N., has long and strenuously advocated the sheathing of naval vessels.

## MARINE PATENTS.

(ILLUSTRATED.)

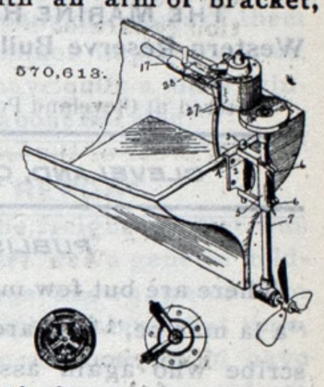
570,839. Towing Apparatus, Armand DeBovet, Paris, France. Filed April 5, 1894. Serial number 506,451. Patented in France, May 25, 1892, No. 211,852.



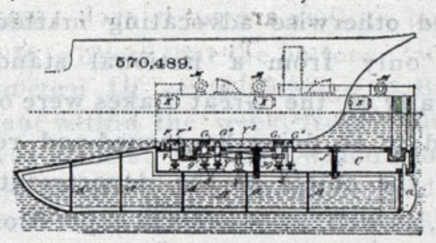

Claim.—In a towing apparatus, the combination of an elastically-supported electric motor, a magnetized friction-pulley connected with and adapted to be actuated from said motor, a fly-wheel with which said pulley is in elastic contact, a towing-wheel, and gearing intermediate said towing-wheel and fly-wheel shaft.

570,613. Boat-Propelling Attachment, Samuel N. Smith, Minneapolis, Minn. Filed Nov. 16, 1895. Serial No. 569,151.

Claim.—The combination, with an arm or bracket, pivotally secured to the boat, of an upright tube adjustably secured to said arm or bracket, a driving-shaft arranged within said tube, a propeller and propeller-shaft supported by said tube, said propeller-shaft being connected by suitable gearing to said driving-shaft, a motor also supported upon said tube and means connecting said motor and said driving-shaft.



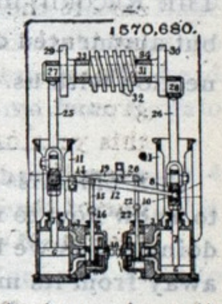

570,489. Floating Dry-Dock and Ship-Cleaning Device, Mark W. Marsden, Philadelphia, Pa. Filed Dec. 6, 1895. Serial No. 571,322.




Claim.—A dry-dock and vessel cleaner, comprising a hull, water-compartments in said hull, casings along each side of hull forming a U-shaped space, transverse form-sections at one or both ends of said U-shaped space between said casings, substantially as described.

570,680. Steam Steering Apparatus, Chauncey B. Perley, Port Huron, Mich., assignor to the Jenks Ship Building Co., same place. Filed June 12, 1896. Serial No. 595,310.

Claim.—In a steam steering apparatus, the combination of a suitably-supported worm-wheel shaft, a wheel held revoluble upon said worm-wheel shaft, said wheel having an eccentric or cam groove, a pilot-wheel, connections whereby the conditions of rest or motion of said pilot-wheel may be imposed upon said grooved wheel, a block fashioned to travel said eccentric groove, a bell-crank lever having a fulcrum attached to said shaft and adopted to be revolved therewith, devices pivotally joining said block and bell-crank lever, a reversing-valve, pivotal and revoluble connections between said bell-crank lever and reversing-valve, steam engines arranged to rotate said worm-wheel shaft, steam and exhaust ports governed by said reversing valve, said steam ports arranged to serve steam to said engines causing them to rotate said worm-wheel shaft in a direction similar to that imposed upon said grooved wheel by said pilot-wheel.




A CONTEMPORARY with more or less truth remarks that the sun is 92,500,000 miles from the earth, and that the earth receives only one two-billionth of the solar heat. Furthermore, the nearest fixed star is sixteen billion miles distant, and takes three years for light to reach the earth. Well! Let us trust that a few handfuls of millions of miles don't count much, even if the figures are a little off. Who's to tell, anyway?

MARINE RECORD

(ESTABLISHED 1878.)

PUBLISHED EVERY THURSDAY BY

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GEORGE L. SMITH, President.

C. E. Ruskin, - - - - Manager.
Capt. John Swainson, - - - - Editor.
Thomas Williams, Chicago, - - Associate

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CLEVELAND, O., NOVEMBER 12, 1896.

### PUBLISHERS' NOTICE.

There are but few men engaged in the literary line, "a la marine," who are entitled to more credit than the scribe who again assumes editorial charge of these columns. During his past ownership of THE RECORD, which extended over several years, prior to about eighteen months ago, Capt. Swainson had taken the lead in writing up and otherwise advocating matters strictly marine, not only from a national standpoint, but more especially as the Great Lakes were or would be affected, and in so doing he earned and received the thanks of the chiefs of the departments under the government, as well as a general expression of satisfaction over his labors from all of the marine element with whom he was in close touch, and also of his confreres on the marine press. The publishers of THE RECORD are therefore highly pleased and gratified to have been in a position whereby they have secured the captain's services at this time and they feel certain that an extension of the many courtesies received by THE RECORD in the past will not only be continued, but augmented on account of Capt. Swainson's re-connection with us.

THE MARINE RECORD PUB. CO.

THE officials of the light-house service don't seem to know how to moor gas buoys, or at least they are not doing so, as we have to record the second buoy to break away from its moorings since being placed. In this instance the gas buoy at Cloes light broke adrift from its moorings and was afterwards picked up at Oak Point. There is possibly a too parsimonious system being used in the anchorage of these aids to navigation.

IT would and does, honestly, make a sailor tired to hear or read some of the verbiage which land-lubbers get off in relation to matters maritime. The daily papers ought to consider the adaptibility of the man they appoint to report on marine, otherwise they sink crews, make red gas buoys into black gas buoys, get aprons over holes instead of canvas jackets, or a paunch mat across a break in a collision case, and do all kinds of obnoxious things. A marine column should be conducted with some degree of the ethics of sailorism, otherwise it becomes a burlesque. This feature is noticeable in the reported loss of three tow-barges and their crews, also in making the blow of a few days ago an equinoctial gale, etc.

### A NORTH PACIFIC STEAMER LINE.

Any development on the Pacific slope whereby the trans-continental freight and passenger service can be handled may be considered as tributary in a measure to the commerce of the lakes. Up to the present time, the Great Northern Railroad Co., president J. J. Hill, has made more advanced strides in connecting the lakes with the Pacific coast trade than any other single enterprise; and it is easy to see that this connection will prove a valuable adjunct to lake business at no distant date.

Following up the obvious advantages to be gained by a prosperous occidental trade, it is now learned that American capitalists are considering a proposition to establish on the Pacific a line of steamers connecting with the new trans-Siberian railway and thus make it a vital and effective part of a great round-the-world system of communication. This new proposition which has long since passed the stage of preliminary discussion, bids fair to be in full operation before any Pacific port has welcomed the first of the much-talked-of Japanese liners.

This new project had its inception in Chicago, and among its supporters are Marshall Field and other Chicago millionaires. The New York end of the enterprise is being equally taken care of and in Philadelphia the project is supported by Wm. Cramp & Sons, shipbuilders. It is the intention of these capitalists to establish a new trans-Pacific line superior to anything afloat. Their plan calls for the construction of steamers of not less than 8,000 tons burden and of 20 knots speed, which will make them eligible to the benefits of the United States mail subsidy of $4 per traveled mile. It is proposed to begin the enterprise with four twin-screw steamers, capable of carrying 5,500 tons of freight, 200 first-class passengers and 1,200 steerage passengers.

As originally proposed the line was to run from San Diego to the ports of China and Japan, but recently the company has opened negotiations to make San Francisco the terminus of the Pacific coast.

The San Francisco Chamber of Commerce has just adopted a vigorous memorial to congress, appealing for action in behalf of a Pacific Ocean mail steamship service under the national flag—in other words, asking for a subsidized line of steamers. The memorial sets forth that Japan is entering the field with modern steamships to be operated under a subsidy law so liberal that a 5,000-ton vessel with fifteen knots speed will be paid $31,000 for a voyage from Yokohama to San Francisco and return. It also calls attention to the fact that Great Britain has a heavily subsidized steamship line between Vancouver and Japan and China, and that another is about to be established between Vancouver and Australia via New Zealand and the Fiji Islands, also calling at Honolulu. The memorial declares that the contest for maritime control of the Pacific is at hand and asks congress to enact such measures as will permit American mail being carried by American ships.

The project only requires the faith and backing of capitalists to make it an ultimate success and if such is granted the loss experienced by Americans in losing the Atlantic trade may be counterbalanced in the development of a brisk trade on the Pacific.

### TO FORTIFY LAKE PORTS.

At stated periods someone with more or less appearance of authority or officialism rushes into print with a screed of how easy it would be for English naval vessels to force a passage into Lake Erie, bombard and destroy the towns and cities thereon, and paralyze the entire commerce of the lakes.

The latest of these seems to be Capt. G. P. Cotton of the First Artillery, who in an article in the Journal of the Military Service Institution on the "Proximity of England to the United States," describes the rapidity with which England could strike a stunning blow at the United States after having collected a large fleet in American waters in anticipation of an act of Congress that could be construed as a declaration of war. In the course of the startling picture he draws Capt. Cotton says: "A few cruisers would stir up our coast, and a dozen gunboats passing through the Welland Canal, have the cities of Lake Erie under their guns; and there would have to be sharp work to save the upper lakes from invasion by obstructions at Detroit."

In advancing arguments of this sort it is attempted to be shown and with some degree of reason that the lower lake ports at least should be strongly fortified, etc. Now any person who will take the trouble to glance at a map of the lake region will not be alarmed by this sort of talk. In case of war with England, the first point at which our naval and military authorities would strike would probably be the Welland Canal. It is difficult enough to imagine that our Government would sit idly by and permit a hostile fleet to ascend the St. Lawrence, however sudden the attempt; to suppose that it could not render the Welland Canal impassable before the enemy's vessels reached that point requires too great a mental strain altogether. That Great Britain would under any circumstances venture to send a fleet against the American cities on the Great Lakes is extremely improbable, and in fact it is quite certain that there will never be occasion for another Perry battle and victory on Lake Erie.

AS OUTLINED in our issue of Nov. 5, lake shipbuilding is by no means to remain inactive during the winter months. Besides the keels for two large wooden vessels, one of which was laid on Wednesday, the same yard is about entering upon the construction of a handy, moderate sized steamer to be equipped in a modern, up-to-date style, and with other work on hand employment for 800 men is assured at this one yard alone for the entire winter. In addition to the foregoing another yard expects to announce in a few days having secured the contract for two steel vessels, while specifications for other tonnage are being figured on, so that shipbuilding, and the pursuits connected therewith, is likely to show up quite brisk before the holidays. Lake shipbuilders will also have a chance to figure on the plans and specifications for three composite lightships and two steel tenders for the light-house service, which are to be sent out within the month. These vessels will be modern and first-class in every particular. There was appropriated $80,000 for each of the lightships and $75,000 for each of the tenders. One of the lightships will be placed at the Golden Gate, San Francisco bar.

THE coroner's inquest on the bodies of the lost seamen of the barge Sumatra, which sunk off Milwaukee harbor on the morning of October 1, resulted in a verdict that the sinking of the vessel and consequent loss of life was due to the fact that the Sumatra carried a larger cargo than her condition warranted at that season of the year. It is a matter of grave doubt whether a coroner's jury composed of men who may have but a scant knowlege of vessels and their condition could pass intelligently upon the condition of the Sumatra and as the vessel had frequently carried a larger cargo it would appear evident that the gentlemen who composed the jury did not understand the difference between a vessel's tonnage measurement and her carrying capacity. There is also an injustice inflicted on vessel owners by the finding of an incompetent jury in a case of this sort.

IT appears that assistant local inspectors of steamboats have been assuming a trifle more authority than the supervising inspector-general thinks is quite right; hence, a calling down in the form of a circular letter has been found necessary. This, however, applies to New York and not to any offices on the lakes, where it appears that officers know and perform their actual duties according to Gunter. Capt. Galvin, supervising inspector of the Buffalo and Cleveland district, is fully alive to the important position which he occupies, and there is a complete absence of friction in any form throughout the entire district. It is to be hoped that with the change of the ministry, or presidents, that politics will not intervene so as to unsettle a present satisfactory condition of the inspection service, at least in the above mentioned district.

### SEAWORTHY CANAL BARGES.

The small canal barges of the Cleveland Steel Canal Boat Co., proved their seaworthiness this week, by reaching Buffalo all well, after being abandoned in a gale of wind by the towing steamer. When off Erie the tow of three barges were left to take care of themselves through the tow line parting and as the steamer was unable to pick them up again, they came to anchor and rode out the gale in first rate shape until the weather moderated when they were towed on to Buffalo, en route for New York.

## MR. OLDHAM'S ADDRESS.

Quoting briefly from the address which Mr. J. R. Oldham delivered on Tuesday evening, before the Civil Engineers Society of Cleveland, it is learned that:

"The first iron steamboat was built in the year 1821. The oldest steamer in active service is now afloat on Lake Erie, the revenue cutter Michigan, having been built in Erie, fifty two years ago. That was before the celebrated Great Britain had crossed the ocean, and in the same year as the first Cunard steamship made her initial trip to Boston. 108,782 tons of shipping was built on the lakes during the last fiscal year, this is nearly equal to two-thirds of the tonnage constructed on the River Wear, during the last nine months, and I may remind you that Sunderland is the greatest shipbuilding port in the world. This year's output there will be fully 230,000 tons.

"Our steel tonnage has been increased fully 40 per cent. since 1892. The capacity of vessels on the lakes this year is 86 per cent. larger than those built three years ago. On the ocean, however, vessels have recently been constructed to carry 13,000 gross tons dead weight."

Regarding shipbuilding, Mr. Oldham said:

"In the commercial or financial world it appears to have become an established conviction that monetary principles or even dividends cannot be increased by leaps and bounds, as was the case not many years ago. Consequently the merchants, manufacturers, and shipowners of to-day would seem to concentrate their energies more toward the perfecting of details connected with the handling or transportation of their merchandise, or an improvement of their plans, or a reduction in certain items of expenditure, of which very casual notice was taken a few years ago.

"I may say that with ship owners the tendancy is to largely increase the capacity of vessels so as to carry greater dead weight in units of displacement, but with a smaller increase in working expenses.

"In like manner the science and practice of engineering has become so perfect and its secrets so widely known that no large advantage can be secured by one painstaking and efficient engineer over another, through any drastic departure in design or in the general system of construction applicable to similar structures. Our marine engineers and shipbuilders are similarly circumstanced, and those who are actuated by that laudable desire to be second to none, find their safest course towards pre-eminence in the careful study of details of construction by which means as sure, though it may appear as small advantage, and but slowly acquired, may always be secured over the less thoughtful and unmethodical engineers or shipbuilders."

## ROCKEFELLER-MERRITT LITIGATION.

John D. Rockefeller seems to come out ahead on his appeal from the $940,000 verdict rendered against him and in favor of Alfred Merritt, of Duluth, in the United States District Court. The United States Circuit Court of appeals has ordered the case back to the lower court with instructions for a new trial. Merritt sued for damages on the charge that there had been fraudulent misrepresentation by Mr. Rockefeller, of the financial standing of two mining corporations, which were given by John D. Rockefeller as his part of a big contract entered into between the parties interested, Aug. 28, 1893. In effect, the court holds that the damages granted were excessive. The suit and verdict attracted wide attention, as also did an attempt to attach Mr. Rockefeller's property elsewhere in satisfaction of the judgment. The original contract, out of which the suit grew, was the organization of one great mining corporation, the Merritts and Rockefeller exchanging their stock in various other corporations for stock in the new consolidated company, and Merritt alleged that Rockefeller's statement of the standing of the original Rockefeller stocks was fraudulent, which view was sustained on trial to the extent of $940,000; but, as we have stated, this view has now been reversed.

## FOUNDERING OF THE SCHOONER WAUKESHA.

The schooner Waukesha foundered off Muskegon on Saturday night last, while at anchor during a northwest gale. Out of a crew of seven men only one was rescued, Frank Dulach, A. B., who was picked up nearly perished with cold and exposure.

The Waukesha left Ludington on Friday with a cargo of 600 tons of salt in bulk, in charge of Capt. Duncan Roberts. Heavy weather was encountered and the vessel began leaking, which necessitated continual work at the pumps. After standing off and on the port, trying to make Muskegon, the schooner was finally anchored, and the leak increased so much that after losing her spars the vessel finally sunk at her anchors, and became a total loss.

The Waukesha was an old schooner, having been built at Manitowoc in 1862. She registered 310 tons, was 138 feet long and 26 feet beam, and her owner, or manager, was F. H. Head, of Chicago.

## ANOTHER LAKE ERIE PORT

Conneaut, O., has been doing a fairly good share of shipping business for some time past, but it is now to be made, according to Mr. Carnegie's report, one of the most important harbors on Lake Erie. Coal and ore docks are to be built this winter and extensive improvements otherwise will be carried out. The P. & L. E. Railroad intend opening a through line to Pittsburg, and if the improvements spoken of are brought about Conneaut will be somewhat of a rival to the great ore-receiving port of Ashtabula.

## A DAVIDSON FLEET.

The steamer Shenandoah, Capt. Geo. Stevenson, carrying 100,000 bushels of corn, and her consorts, barge Algeria, Capt. M. Elnen, with 156,000 bushels of barley, and barge Armenia, Capt. Carl Johnson, with 110,000 bushels of wheat, cleared from Chicago, drawing respectively, 15 ft. 5, 15 ft. 10, and 15 ft. 4 inches.

These are a part of the new fleet built and owned by Capt. James Davidson, of West Bay City, Mich., and are up to date in carrying capacity, and models of workmanship and strength.

These cargoes aggregate close to 10,000 tons, equaling the loads of 325 large freight cars, a train approaching two miles in length, a good week's business for one of ur trunk railway lines from here east.

## PERSONAL INJURY CLAIM.

The steamer Escanaba was libeled at Milwaukee on Saturday, for a personal injury claim of $25,000 preferred by McLain, who was employed as a wheelsman. It appears that McLain had orders to do some work about the mainmast head of the steamer and, seated in a boatswain's chair was being hoisted by a pony engine on deck, when the gantline broke and he fell. In his fall he struck the hatch coaming and dropped into the hold. Although he fell a distance of eighty feet he escaped with his life, a broken kneecap seeming to be the most severe injury sustained. At the Marine hospital afterward, however, it was found necessary to amputate the injured leg. Hence the large amount claimed.

## NAVAL COAL CONSUMPTION.

According to the annual report of Commodore Chadwick, chief of national equipment, the warships last year burned 116,903 tons of coal costing $620,131, and of this amount 61,741 tons were purchased abroad. These figures exceeded those of 1895 in proportion to the increased number of ships afloat. It is noted that only 45 per cent of this fuel was used for steaming purposes, the remainder being consumed for auxiliaries, including electric lighting, ventilation, etc. The principal users of coal for cruising were the Minneapolis, 5,013 tons; the New York, 3,103; the Olympia, 3,075; the Raleigh, 2,957; the Columbia, 2,904; the Newark, 2,579; and the Baltimore, 2,187. The flagship Philadelphia, which used only 764 tons cruising, consumed 2,324 tons for auxiliaries, while the Minneapolis needed only 569 tons for the latter purpose.

## VERDICT OF A CORONER'S JURY.

The coroner's jury impanneled to hear evidence relative to the loss of life by the recent foundering of the barge Sumatra, off Milwaukee, returned a verdict to the effect that "Athur Burnsted, Patrick Peterson, Peter Anderson and Charles Hammer, were drowned in Lake Michigan, near Milwaukee harbor, on October 1, 1896, the cause of said drowning being the foundering of the tow-barge Sumatra, in a storm at the time," and the jury "believe from the evidence that the barge was overloaded, in view of the season of the year and the condition of the barge" The testimony brought out showed that while the registered capacity of the vessel was 804 tons, the load upon the occasion was 1421 tons.

## KEELS TO BE LAID FOR THREE NEW VESSELS.

At the shipyards of Capt. James Davidson, West Bay City, Mich., work has been commenced on three new vessels. Two of these will be large schooner consorts, and from the builders' description to THE RECORD, "they will be after the model and style of the schooners Armenia, Algeria and Abyssinia, which boats left our yards last spring. These vessels will be 300 feet long, 45 feet beam, and 24 feet moulded depth. They will be double deck schooners, and will have steel keelsons, steel arches, diagonal straps, and will be very strongly and substantially constructed throughout. They will have steam windlasses, steam capstans, steam deck pumps, and in fact the latest and most modern improvements in every way. They will have a capacity of from 4,000 to 4,200 tons, and we expect to have them all completed and finished by the opening of navigation. We have a good deal of the preliminary sawing done for one boat, and the keel will probably be laid Wednesday. The other keel will be laid a few days later.

"In addition to the above, we are also making preparations to build a new steamer, 210 feet keel and 41 feet beam. This steamer will be modern in every way, and will be a general, all-around boat for any trade. She will be available for lumber, with a capacity of about 1,000,000 feet on a 10-foot draft of water. This steamer will also be ready for the opening of navigation the coming season.

"We are figuring on several repair jobs, some of them quite extensive, and others of minor importance; so, taking it all in all, we expect to have quite a busy winter and will give employment to about 800 men."

## WEEKLY FREIGHT REPORT.

While we said last week that the freight market was one of uncertainty and that there was a general holding off until the election result was known, we can not show very bright business or prospects since that time, in fact chartering is slower than any one could have surmised. In a word, grain cargoes are scarce and ore men are offered more tonnage than they want; coal, however, is a trifle better, but there is no use in taking a low freight cargo west if there is nothing to return with.

It is likely that the bottom fraction has been reached on corn 1¼ cents, Chicago to Buffalo, a decline of ½ cent within the week, from Duluth a Midland charter was made at 2¼ cents, which is only a little better than 2½ cents to Buffalo, or to hold for winter storage a little business has been done at 3¼ cents, and from Detroit to Ogdensburg to hold cargo at 4 cents. Milwaukee, barley to Buffalo 2 cents and to Oswego 3½ cents.

Ore cargoes are not to be found. Escanaba to Buffalo is quoted at 65 cents and down to 60 cents for Ohio ports, but the market is more than dull even at those figures, and unless a grain spurt sets in a number of large carriers will go into winter quarters during the week.

Coal has ruled fairly steady at 30 cents from Lake Erie ports to Lake Michigan, but without a down cargo there is nothing in that figure; 25 cents to the head of the lakes from Ohio ports, and 20 cents from Buffalo with fairly good shipments.

Canal freights out of Buffalo have been steady at 4 cents on wheat, 3⅝ cents on corn, 2½ cents on oats, 3⅝ cents on rye, 3¼ cents on barley to New York.

Lumber freight rates $2.00 to New York and $1.50 to Albany.

THE great Siberian railway is now completed to Krasnoyarsk. During the season of 1895 918¼ miles were built. This gives a direct route from Petersburg to the Yenesei river, a distance of 3,056½ miles. The proposed length of the great Siberian railway from Cluliabinsk to Vladivostok on the Japan sea is 4,547 miles, of which one-third is now completed. A large amount of work has also been done on the branches. There are now engaged upon the actual work of construction over 70,000 workmen, besides engineers and officers. Up to 1896 $32,488,000 had been expended. The plan of building across the mountains and canons on the south of Lake Baikal, which was the most difficult feature of the whole enterprise, has been abandoned, and trains will be ferried across the lake by transfer steamers, as we illustrated two weeks ago, and they will travel a distance of about 20 miles.

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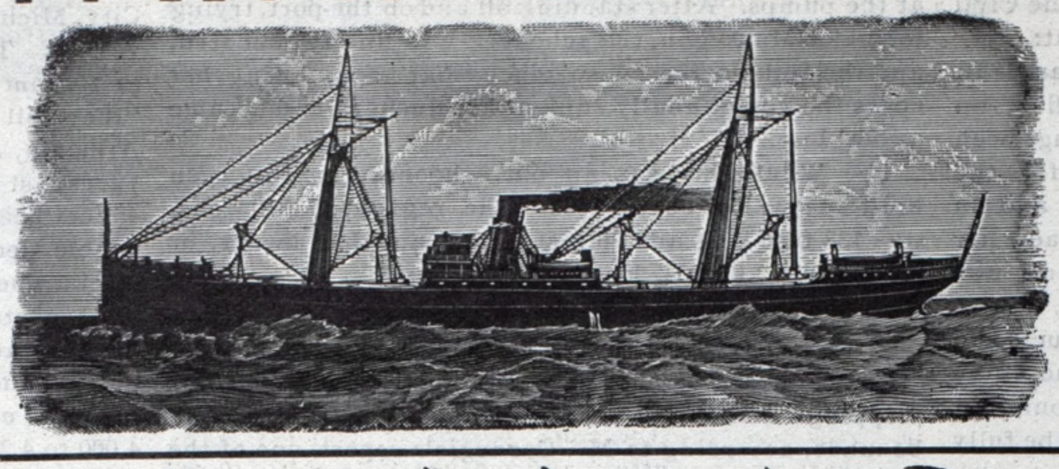

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## CORRESPONDENCE.

☞We do not hold ourselves responsible in any way for the views or opinions expressed by our correspondents. It is our desire that all sides of any question affecting the interests or welfare of the lake marine should be fairly represented in THE MARINE RECORD.

### THE GREYHOUND OF THE LAKES.

CHICAGO, Nov. 10, 1896.

*To the Editor of The Marine Record:*

In your issue of Oct. 29th I see some one asking for the dimensions of the Christopher Columbus. Your figures for the hull are all right, but let me correct you on her engines as they stand to-day. They are 28"x42" x70"x42". Then again—just below that article—I see the Owego is still the greyhound of the lakes. She may be the fastest freight boat, but not the fastest boat on fresh water. The Columbus has made a run of 21 miles in 54 minutes, and has made that time more than once. So you will see Mr. E. Gaskin is off somewhat on his calculations.

Yours truly,
W. P. WEBSTER.

### A PLEA FOR LIFE-SAVING APPLIANCES.

CHICAGO, ILLS., Nov. 8th, 1896.

*To the Editor of The Marine Record:*

Is it not time that something was done toward the preservation of the lives of the officers and crews of tow barges and schooners? Surely the lives of those on sailing vessels are as valuable as those on passenger and freight steamers, which are compelled by the U. S. government to carry life rafts, life buoys and life preservers, and they run greater risks of losing their lives, as the steamer can usually, if her machinery remains intact, help herself through the wind and storm, whereas the tow barge, when the tow line parts, is left to the mercy of the wind and waves.

As an instance, I will mention the recent loss of the tow barge Sumatra, off Milwaukee. The steamer towing her got safe into port. The Sumatra foundered, carrying down with her four of her crew. They were not far from land, and a tug and the Milwaukee life-saving station life-boat were in the immediate vicinity of the foundered vessel and rescued the captain, mate and steward; and had the Sumatra been supplied with life saving appliances similar to those carried by the steamer, in all human probability the lives of more, if not all, of the crew would have been saved.

Some tow barges on the lakes carry neither sails nor centreboards, and I would ask what chance for saving their lives have the officers and crews on such vessels? The anchors are their only hope, so long as they hold and prevent the vessel from being driven ashore. If the vessel keeps out in the lake the probabilities are that she will founder, in consequence of her being more helpless than a log, as heavy seas containing many tons of water will more than fill her decks, and if she is overloaded, as is sometimes the case, or is old or unseaworthy, she will go down either from the weight of the water dashing on board, or the seams will open up through her straining.

The Lake Carriers' Association has done excellent work in getting the U. S. government to erect new light-houses, and place light-ships, buoys and range lights to aid navigation, but they seem to have neglected to interest themselves sufficiently to obtain legislation which would assist in preventing the loss of the lives of the men who so well and faithfully serve them and risk their lives on their tow barges and sail vessels. If the lives of human beings are considered of less value than the cost of necessary life saving appliances, then humanity has fallen to a very low ebb, and the U. S. government should enact laws to compel or teach the owners of such vessels their duty to their fellow men.

I would, in conclusion, ask the owners of tow barges and sail vessels, in the cause of humanity and for the benefit of those they employ, to at once supply their vessels with good and sufficient life saving appliances. This is the worst part of the season, and although it will soon be ended, yet some lives may be saved which might be lost but for those appliances, and such saving of life would repay the vessel owner one hundred-fold for the outlay and bring God's blessing and the blessings of the saved and their families, relatives and friends down upon their heads.

I hope that all vesselmen who read this epistle will interest themselves on behalf of the end I have in view, and that they will freely express their opinions on the subject in THE MARINE RECORD, which paper will, I feel sure, be pleased to open its columns to aid the cause of justice and humanity.

Hoping I am not intruding too much on your valuable space, I am yours respectfully,

LIFE LINE.

NOW IS the time to subscribe for THE MARINE RECORD. Price, $2.00 per year.

## NOTES.

THE Bureau of Navigation, Treasury Department, is advised that new regulations of foreign and Chinese traffic between Shanghai, Soochow and Hangchow have been established. Information in detail regarding them can be obtained from the bureau by persons directly interested.

* * *

IN an article entitled "Some Fuel Problems," Jos. D. Weeks says: "The percentage of the possible energy of coal utilized to-day does not exceed 10 per cent., if, indeed, it reaches 5 per cent. That is, but 10 per cent. of the 30 per cent. of the coal won, or but 3 per cent. of the possible energy imprisoned in the coal, is ever released for useful work. The value of this lost energy must every year, in the United States alone, reach hundreds of millions of dollars. A low estimate of the value of by-products per ton of coal burned would be 50 cents. This would be $64,000,000 on the bituminous coal mined in 1893. For an age that prates so loudly of its economies, this is a sorry showing."

* * *

NEW YORK papers have been discussing the canal improvements upon which $9,000,000 are to be spent. They complain that the improvements do not go far enough if the commerce of the lakes through New York state is to be maintained. One of the papers publishes facts and statistics showing the immense increase in the traffic through the St. Marys river and canal, originating in the far West, and adds: "In view of this great volume of commerce it seems remarkable that all that New York proposes to do to retain the big grain traffic which comes to her through the lakes is to deepen the Erie (Oswego) and Champlain canals by only two feet. For the Empire State to have shown a curious indifference to her own business interests seems incredible indeed. The Buffalo correspondent of Black Diamond pertinently remarks that New York business men seem to think that the traffic will come this way perpetually, no matter if the Erie canal is not improved. But it won't. There is a great empire west of Lakes Michigan and Superior which must have an adequate outlet, and if it cannot get through New York State it will get it down through the St. Lawrence. In a few years there will be 50,000,000 tons of freight pouring through the Great Lakes, and the urgent necessity brought about by such conditions will compel abrupt attention to the construction of an adequate outlet to the sea. The present is the time, however, to agitate the subject."

## SOME INTERESTING EXPERIMENTS.

At the sixth annual or 32nd meeting of the American Society of Mechanical Engineers, held at the rooms of the society in New York city, Mr. Albert Kingsbury, Durham, N. H., had a paper on "Experiments on the Friction of Screws." The tests were made by the aid of a specially designed machine, built at the New Hampshire College shops. It now forms a part of the laboratory equipment of the college.

The author did not consider that the tests showed that any one of the metals developed less friction than any of the others, but the tests are specially interesting because of the great lessening of friction by means of graphite, as will be shown by the following:

| *Lubricator.* | *Minimum.* | *Maximum.* | *Mean.* |
|---|---|---|---|
| Lard Oil | .09 | .25 | .11 |
| Heavy Machinery, Oil (Mineral) | .11 | .19 | .143 |
| Heavy Machinery, Oil and Graphite, (Equal Volumns). | .03 | .15 | .07 |

Mr. Kingsbury was complimented by Professor Thurston for the work he had accomplished. Personally, Professor Thurston had found that sperm oil was better than lard oil for reducing friction in such instances. He trusted that Mr. Kingsbury would continue his investigations.

Mr. Kingsbury felt gratified at the manner in which his paper had been discussed, and in reply to a question that had been asked, he said that the graphite used was from the Joseph Dixon Crucible Co., Jersey City, N. J. He said he did not intend anything in the way of an advertisement. He also added that he had tried to purify the graphite, but there was no gain. In order to satisfactorily employ the graphite the fit must be loose.

Some years ago, when Professor Thurston was connected with Stevens' Institute, he made a series of experiments to determine with scientific accuracy the value of graphite as a lubricant. He found that under the same number of pounds pressure, and traveling at the same rate of speed, the bearings lubricated with Dixon's graphite, mixed with enough water to distribute it over the bearings, did nearly three times more work than the best quality of winter sperm oil. He also found that when 15 per cent, by weight, of graphite was added to the best quality of lubricating grease, he was able to run the bearings nearly six times longer, at the same high rate of speed, than when the bearings were lubricated with the same grease, without the addition of graphite. Furthermore, when the graphite was used there was no cutting and the bearings were in perfect condition.

Little, if any, of the commercial graphite in the market is fit for lubricating purposes, and bearings have been so frequently cut or ruined by its use, that there has been a very strong prejudice against its adoption by master mechanics and superintendents having charge of expensive machinery. It is safe to say, however, that when graphite is properly prepared, it will not only reduce friction much better than any oil or grease alone, but, furthermore, will perceptibly reduce the cost of lubrication.

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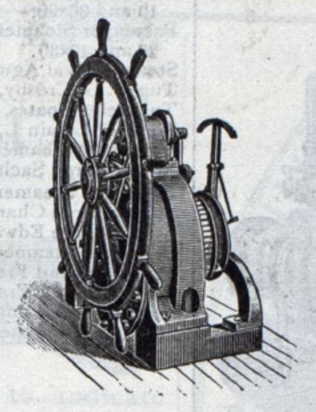
IN the United States District Court at Milwaukee Judge Seaman sustained the report of Commissioner Kurtz in the matter of division of damages growing out of the sinking of the steamer Thomas H. Smith by the steamer Arthur Orr, off Racine north point several seasons ago. According to the report of Commissioner Kurtz the owners of the steamer Orr must pay to the Leatham & Smith Towing and Wrecking Co. $10,000 damages with interest from Nov. 11, 1893.

## PROPOSALS.

U. S. ENGINEER OFFICE, 366 Milwaukee street, Milwaukee, Wis., Oct. 27, 1896. Sealed proposals for: Kewaunee Harbor, Wis., 425 feet pile pier extension; Manitowoc Harbor, Wis., 500 feet crib pier extension; South Milwaukee Harbor, Wis., 180 feet pile pier extension; Racine Harbor, Wis., 250 feet crib pier extension; Kenosha Harbor, Wis., 250 feet crib pier extension; will be received here until 12 o'clock noon November 27, 1896, and then publicly opened. Information furnished on application, GEORGE A. ZINN, Capt. Engrs. 45-47

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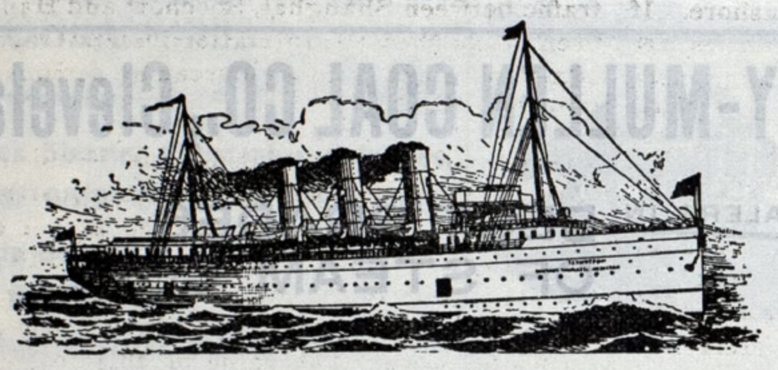

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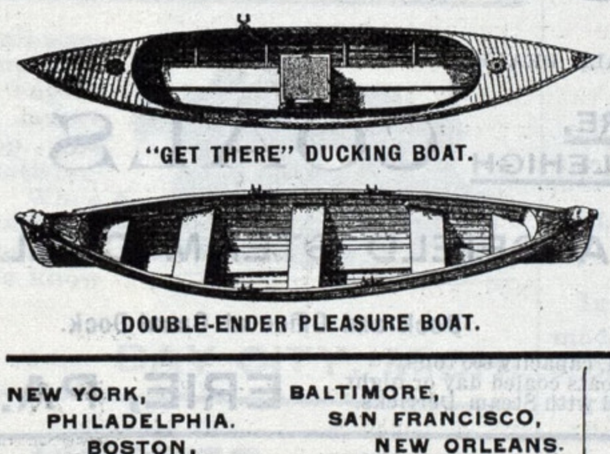

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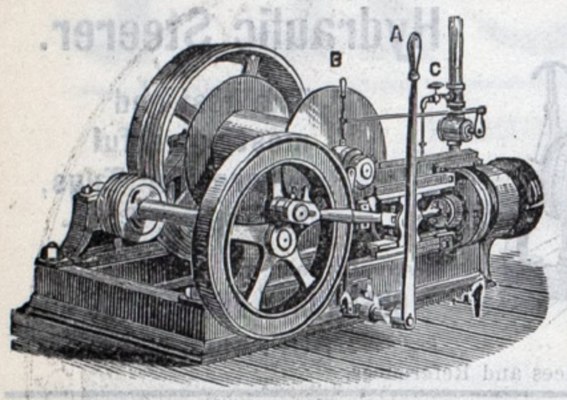


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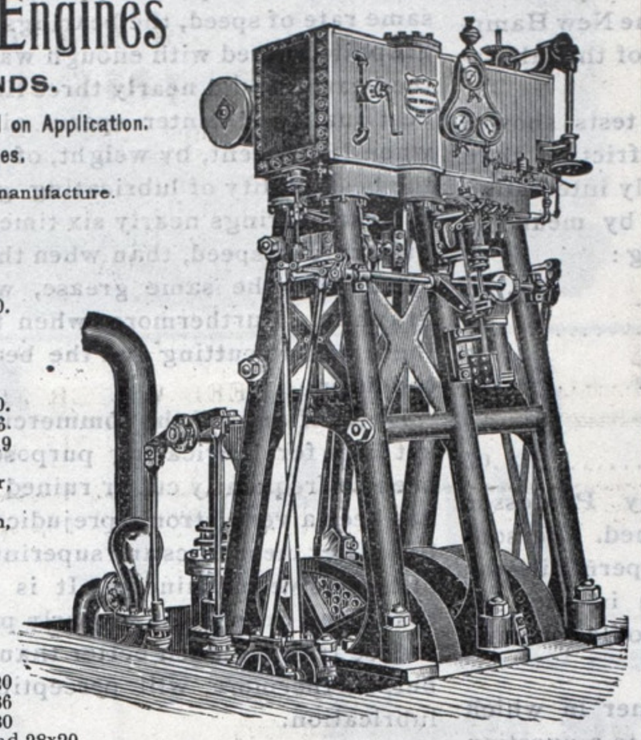

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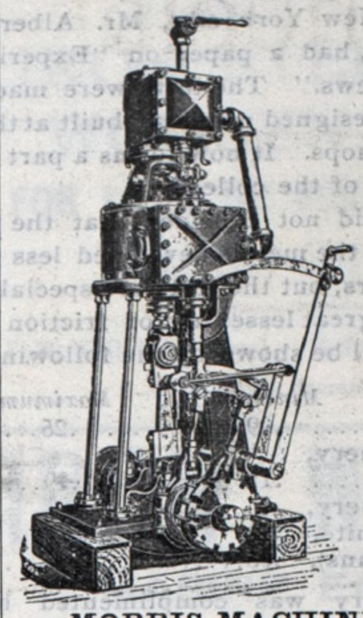

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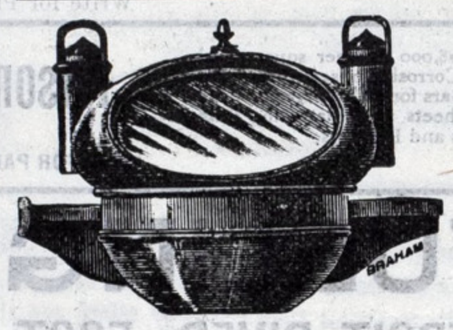


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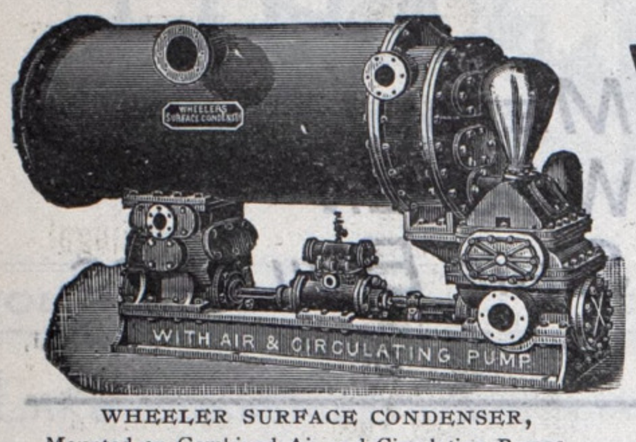


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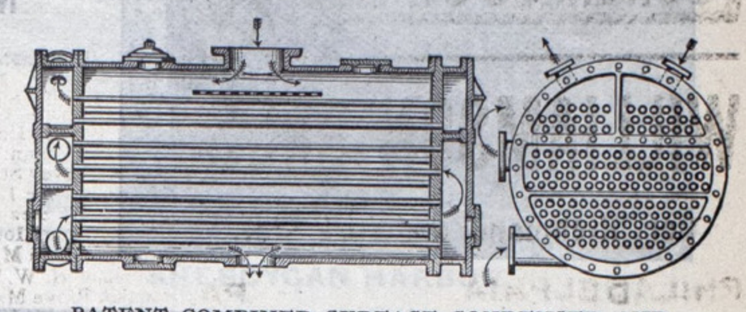

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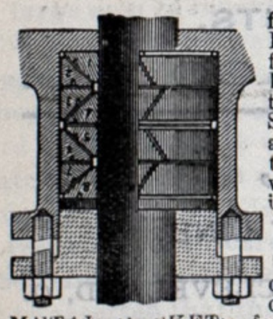

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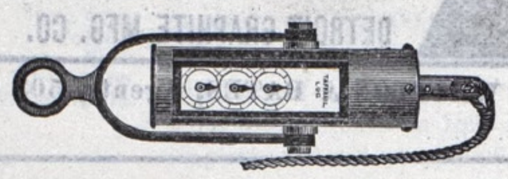

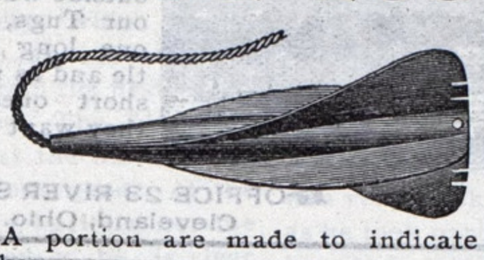

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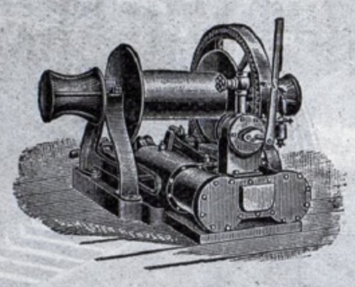

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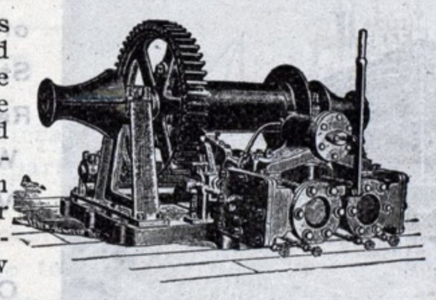

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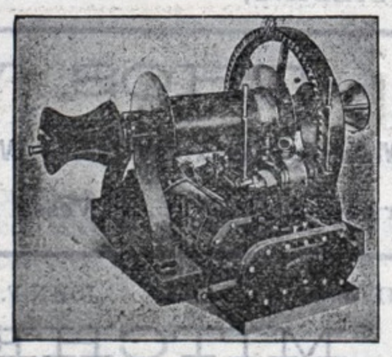

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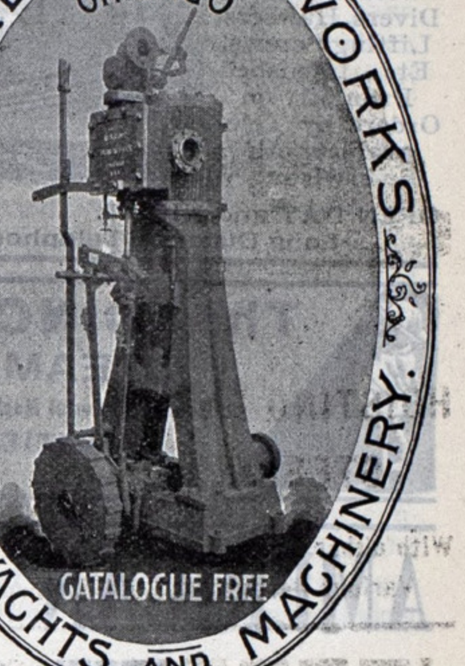

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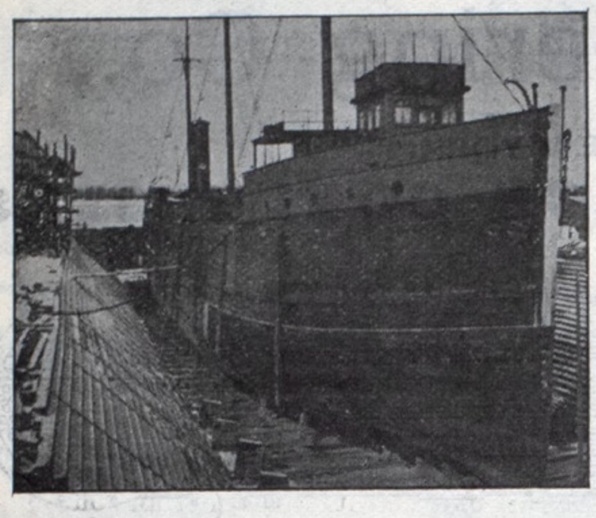

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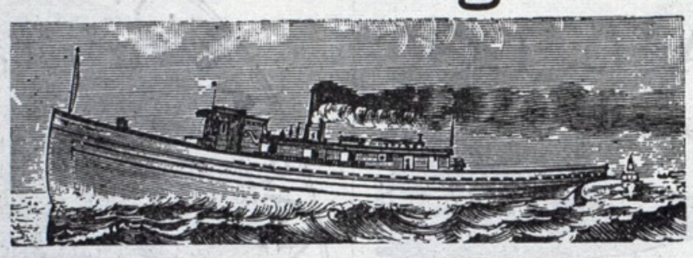

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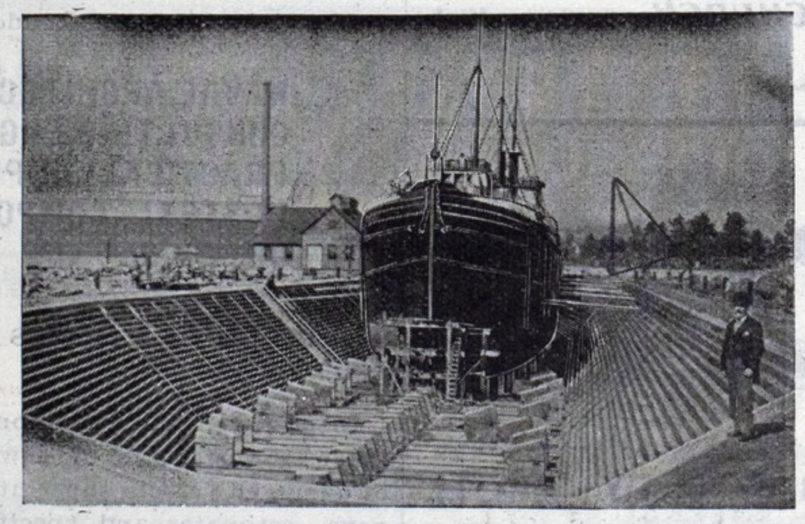

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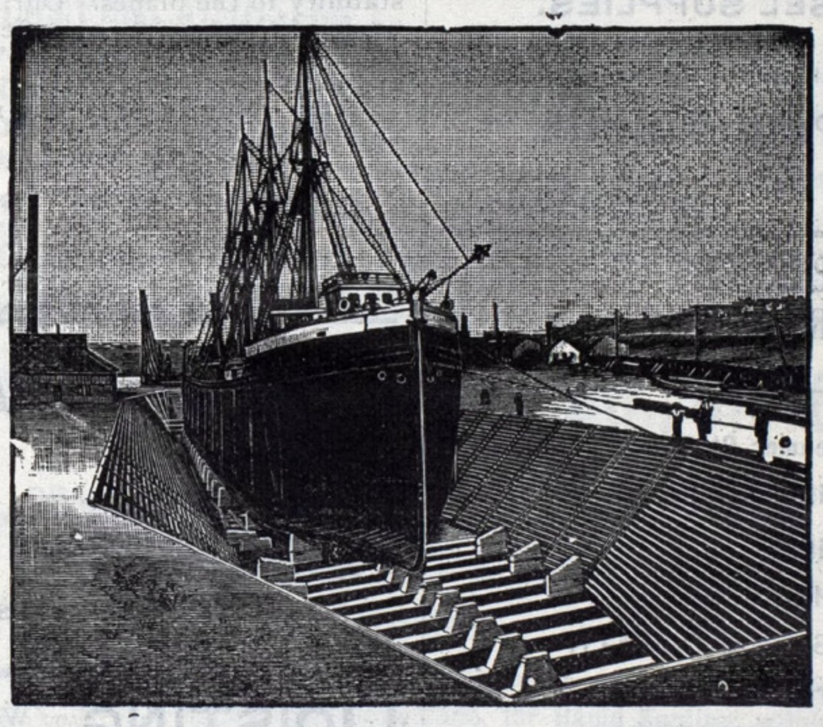

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